

LISTING OF CLAIMS:

1. (Currently amended) An electric motor comprising:

a motor main body that is rotated upon energization of the motor main body;

a speed reducing unit that includes:

a speed reducing mechanism that reduces rotational speed of the motor main body; and

a gear housing that receives the speed reducing mechanism;

a control circuit board that is held in the gear housing and has at least one electric circuit component; ~~and~~

a connector housing that is detachably connected to the gear housing and is connectable with an external connector, wherein:

the connector housing is formed separately from the gear housing;

the connector housing includes a plurality of connection terminals that are secured to the connector housing; and

the connection terminals of the connector housing are detachably connected with the at least one electric circuit component of the control circuit board and are connectable with corresponding terminals of the external connector; and

an output shaft, which is connected to the speed reducing mechanism to output rotational force from the motor, wherein a plane of the control circuit board is parallel to an imaginary plane, which is perpendicular to a rotational axis of the output shaft.

2. (Previously presented) The motor according to claim 1, wherein the motor is constructed such that the control circuit board is installable in the gear housing after assembly of the motor main body to the gear housing.

3. (Previously presented) An electric motor comprising:

a motor main body that is rotated upon energization of the motor main body;

a speed reducing unit that includes:

a speed reducing mechanism that reduces rotational speed of the motor main

body; and

a gear housing that receives the speed reducing mechanism;

a control circuit board that is held in the gear housing and has at least one electric circuit component; and

a connector housing that is provided to the gear housing and is connectable with an external connector, wherein:

the connector housing is formed separately from the gear housing;

the connector housing includes a plurality of connection terminals that are secured to the connector housing; and

the connection terminals of the connector housing are connected with the at least one electric circuit component of the control circuit board and are connectable with corresponding terminals of the external connector;

the gear housing includes a circuit board installation opening, through which the control circuit board is installed in the gear housing; and

the circuit board installation opening is provided with a closing and securing member, wherein the closing and securing member closes the circuit board installation opening such that the closing and securing member holds the control circuit board in a predetermined position in the gear housing.

4. (Previously presented) The motor according to claim 3, wherein:

the closing and securing member is formed separately from the control circuit board and is engaged with the control circuit board in an inserting direction that the control circuit board is inserted into the gear housing;

the closing and securing member includes a closing and sealing resilient member, which seals a connection between the closing and securing member and a portion of the gear housing located around the circuit board installation opening; and

the closing and sealing resilient member includes a circuit board engaging portion, which is integrally molded with the closing and sealing resilient member and is engaged with the control circuit board.

5. (Previously presented) An electric motor comprising:

a motor main body that is rotated upon energization of the motor main body;

a speed reducing unit that includes:

a speed reducing mechanism that reduces rotational speed of the motor main body; and

a gear housing that receives the speed reducing mechanism;

a control circuit board that is held in the gear housing and has at least one electric circuit component; and

a connector housing that is provided to the gear housing and is connectable with an external connector, wherein:

the connector housing is formed separately from the gear housing;

the connector housing includes a plurality of connection terminals that are secured to the connector housing;

the connection terminals of the connector housing are connected with the at least one electric circuit component of the control circuit board and are connectable with corresponding terminals of the external connector;

the motor is constructed such that the control circuit board is installable in the gear housing after assembly of the motor main body to the gear housing;

the gear housing includes a circuit board installation opening, through which the control circuit board is installed in the gear housing;

the circuit board installation opening is provided with a closing and securing member, which closes the circuit board installation opening; and

the control circuit board is held in a predetermined position in the gear housing by the closing and securing member, wherein the closing and securing member is secured to the control circuit board before installation of the control circuit board in the gear housing and is then secured to the gear housing around the circuit board installation opening to close the circuit board installation opening.

6. (Previously presented) An electric motor comprising:

a motor main body that is rotated upon energization of the motor main body;

a speed reducing unit that includes:

a speed reducing mechanism that reduces rotational speed of the motor main body; and

a gear housing that receives the speed reducing mechanism;

a control circuit board that is held in the gear housing and has at least one electric circuit component; and

a connector housing that is provided to the gear housing and is connectable with an external connector, wherein:

the connector housing is formed separately from the gear housing;

the connector housing includes a plurality of connection terminals that are secured to the connector housing;

the connection terminals of the connector housing are connected with the at least one electric circuit component of the control circuit board and are connectable with corresponding terminals of the external connector; and

the gear housing includes a plurality of connector installation openings, and the connector housing is secured to one of the plurality of connector installation openings.

7. (Previously presented) An electric motor comprising:

a motor main body that is rotated upon energization of the motor main body;

a speed reducing unit that includes:

a speed reducing mechanism that reduces rotational speed of the motor main body; and

a gear housing that receives the speed reducing mechanism;

a control circuit board that is held in the gear housing and has at least one electric circuit component; and

a connector housing that is provided to the gear housing and is connectable with an external connector, wherein:

the connector housing is formed separately from the gear housing;

the connector housing includes a plurality of connection terminals that are secured to the connector housing; and

the connection terminals of the connector housing are connected with the at least one electric circuit component of the control circuit board and are connectable with corresponding terminals of the external connector;

the gear housing includes:

a circuit board installation opening, through which the control circuit board is installed in the gear housing; and

a connector installation opening, to which the connector housing is secured; and

the circuit board installation opening and the connector installation opening have a generally identical shape and size, so that the control circuit board is installable in the gear housing through any one of the circuit board installation opening and the connector installation opening, and the connector housing is securable to any one of the circuit board installation opening and the connector installation opening.

8. (Previously presented) An electric motor comprising:

a motor main body that is rotated upon energization of the motor main body;

a speed reducing unit that includes:

a speed reducing mechanism that reduces rotational speed of the motor main body; and

a gear housing that receives the speed reducing mechanism;

a control circuit board that is held in the gear housing and has at least one electric circuit component; and

a connector housing that is provided to the gear housing and is connectable with an external connector, wherein:

the connector housing is formed separately from the gear housing;

the connector housing includes a plurality of connection terminals that are secured to the connector housing; and

the connection terminals of the connector housing are connected with the at least one electric circuit component of the control circuit board and are connectable with corresponding terminals of the external connector;

the motor main body includes a brush holder member, wherein the brush holder member holds a plurality of power supply brushes and includes a resilient sealing member; and

the resilient sealing member seals a connection between the motor main body and the gear housing and includes a connector sealing portion, which seals a connection between the gear housing and the connector housing.

9. (Previously presented) An electric motor comprising:

a motor main body that is rotated upon energization of the motor main body;

a speed reducing unit that includes:

a speed reducing mechanism that reduces rotational speed of the motor main body; and

a gear housing that receives the speed reducing mechanism;

a control circuit board that is held in the gear housing and has at least one electric circuit component; and

a connector housing that is provided to the gear housing and is connectable with an external connector, wherein:

the connector housing is formed separately from the gear housing;

the connector housing includes a plurality of connection terminals that are secured to the connector housing; and

the connection terminals of the connector housing are connected with the at least one electric circuit component of the control circuit board and are connectable with corresponding terminals of the external connector;

the gear housing includes:

a circuit board installation opening, through which the control circuit board is installed in the gear housing; and

a connector installation opening, to which the connector housing is secured; and

the circuit board installation opening is oriented in a direction, which is different from that of the connector installation opening.

10. (Original) The motor according to claim 9, wherein the circuit board installation opening is oriented in a direction, which is angled generally 180 degrees from the direction of orientation of the connector installation opening.

11. (Original) The motor according to claim 9, wherein the circuit board installation opening is oriented in a direction, which is angled generally 90 degrees from the direction of orientation of the connector installation opening.

12. (Previously presented) An electric motor comprising:

a motor main body that is rotated upon energization of the motor main body;

a speed reducing unit that includes:

a speed reducing mechanism that reduces rotational speed of the motor main body; and

a gear housing that receives the speed reducing mechanism;

a control circuit board that is held in the gear housing and has at least one electric circuit component; and

a connector housing that is provided to the gear housing and is connectable with an external connector, wherein:

the connector housing is formed separately from the gear housing;

the connector housing includes a plurality of connection terminals that are secured to the connector housing; and

the connection terminals of the connector housing are connected with the at least one electric circuit component of the control circuit board and are connectable with corresponding terminals of the external connector;

the gear housing includes:

a circuit board installation opening, through which the control circuit board is installed in the gear housing; and

a connector installation opening, to which the connector housing is secured; and

the circuit board installation opening is oriented in the same direction as that of the connector installation opening.

13. (Canceled)

14. (Previously presented) An electric motor comprising:

a motor main body that is rotated upon energization of the motor main body;

a speed reducing unit that includes:

a speed reducing mechanism that reduces rotational speed of the motor main body; and

a gear housing that receives the speed reducing mechanism;

a control circuit board that is held in the gear housing and has at least one electric circuit component;

a connector housing that is provided to the gear housing and is connectable with an external connector; and

an output shaft, which is connected to the speed reducing mechanism to output rotational force from the motor, wherein:

a plane of the control circuit board is perpendicular to an imaginary plane, which is perpendicular to the rotational axis of the output shaft;

the connector housing is formed separately from the gear housing;

the connector housing includes a plurality of connection terminals that are secured to the connector housing; and

the connection terminals of the connector housing are connected with the at least one electric circuit component of the control circuit board and are connectable with corresponding terminals of the external connector.

15. (Previously presented) An electric motor comprising:

a motor main body that is rotated upon energization of the motor main body;

a speed reducing unit that includes:

a speed reducing mechanism that reduces rotational speed of the motor main body; and

a gear housing that receives the speed reducing mechanism;

a control circuit board that is held in the gear housing and has at least one electric circuit component;

a connector housing that is provided to the gear housing and is connectable with an external connector; and

an output shaft, which is connected to the speed reducing mechanism to output rotational force from the motor, wherein:

the connector housing is formed separately from the gear housing;

the connector housing includes a plurality of connection terminals that are secured to the connector housing;

the connection terminals of the connector housing are connected with the at least one electric circuit component of the control circuit board and are connectable with corresponding terminals of the external connector;

the motor is a power window motor arranged on an exterior side of an inner panel of a vehicle door, which has a through hole that penetrates through the inner panel;

the connector housing is placed adjacent the through hole of the inner panel on the exterior side of the inner panel and is connected with the external connector, which is installed from an interior side of the inner panel; and

the connector housing is installed to the gear housing in a direction parallel to a rotational axis of the output shaft and is clamped between the gear housing and the inner panel.

16. (Original) The motor according to claim 15, wherein:

the connector housing is provided with a panel sealing member, which is resilient and seals the through hole of the inner panel; and

the connector housing is connected to the inner panel through the panel sealing member.

Claims 17 – 18 (Canceled)